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(54) ORGANIC ELECTROLUMINESCENCE ELEMENT

(57)Abstract:

PURPOSE: To improve the breakdown voltage property and to realize an even luminous property by inserting a metal oxide with an insulating property of 4.0eV or higher of energy gap between a luminous layer and a cathode.

CONSTITUTION: By inserting a metallic oxide with the insulating property having the energy gap E_g 4.0eV or higher between a luminous layer and a cathode, the breakdown voltage property can be improved. In this case, the ionizing energy is also increased because of the wide energy gap, it functions as a hole barrier layer, and the luminous efficiency can be improved effectively. And the metallic oxide has a high breakdown voltage property as well as a good insulation, and the surface temperature when the membrane is produced can be suppressed at a low value. The voltage breakdown property is improved regardless of the position where the metal oxide is inserted, but the effect is larger when it is inserted between the luminous layer and the cathode, and furthermore, the attaching efficiency of the cathode and the luminous layer can be also improved. Consequently, an even luminous property is realized, the recombining property of the electrons and holes is improved, and a high efficiency of organic EL element can be obtained without dropping the luminous efficiency.